

SECTION III

SEQUENCE OF OPERATION

The **AMERICAN RECIRCULATING SAND FILTER** is operated via a "state of the art" controller, which is activated by level sensing devices (standard mechanical differential float switch) located in a recirculation tank downstream of the primary settling process. Each controller manages one or more automatic alternating duplex pump systems. When activated by the rising level of effluent in the dosing tank, the controller will enable the dispersal cycle, and as dictated by the time clock, pump the effluent through a force main feeding a hydraulically activated sequencing valves. The sequencing valve will distribute effluent through one outlet port and into a single manifold feeding several parallel distribution laterals. The sand filter pump control panel is equipped with four float switches to control the timed doses to be discharged. The four float switches, "Redundant Off", "Standard Dose Enable", "Peak Dose Enable", and "High Level" function as follows:

- Redundant Off - The water level must be high enough to overcome the "Redundant Off" (first & bottom) float in order for the pump to be permitted to run.
- Standard Dose Enable - When the water level rises high enough to overcome the "Standard Dose Enable" (second) float and the time clock has timed out the preset time delay (rest between dosing cycles for two zone designs) the pump will activate and the lead zone is dosed. The pump will continue to run for the length of time as adjusted on the pump run timer and then shut off. The pump will remain off until the internal time clock again times out the preset time delay after which the pump will activate (as long as the "Standard Dose Enable" float is still up) and will run until the pump run timer finishes timing out. This process will repeat until the water level drops below the "Standard Dose Enable" float and the pump run timer has timed out.
- Peak Dose Enable - The control system will be equipped with a "Peak Dose Enable" circuit to manage peak flows and excess water use. If the rising water level activates the "Peak Dose Enable" (third) float, the "Pump - Off - Pump & Alarm" switch is set to "Pump", and the preset time delay has been exceeded ("Peak Dose Enable" rest between cycles), the lead zone will be dosed. When the "Peak Dose Enable" circuit has been deactivated the normal pumping cycle will resume. If the rising water level activates the "Peak Dose Enable" (third) float, the "Pump - Off - Pump & Alarm" switch is set to "Pump & Alarm", and the preset time delay has been exceeded ("Peak Dose Enable" rest between cycles), the lead zone will be dosed and the "Peak Dose Enable" alarm will be activated. The audio portion of the alarm may be silenced by pressing the Test-Normal-Silence switch to the silence position. When the "Peak Dose Enable" float has returned to the down position the alarm will be deactivated and the normal pumping cycle will resume.
- High Level - If the water level rises enough to overcome the "High Level" (fourth) float, the audiovisual alarm will activate. The audio portion of the alarm may be silenced by pressing the Test-Normal-Silence switch (located on the outside of the control panel) to the silence position. The alarm circuit will latch until manually reset after the "High Level" float returns to its normal (down) position. The alarm circuit is manually reset by switching the High Level Reset/Off-Normal switch (located inside the control panel on the inner door) to the Reset position then back to normal.